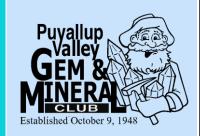
ROCK-A-TEER



Newsletter of the Puyallup Valley Gem & Mineral Club

Jillian Higgins

Issue 66

Volume 119

July

2023

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P.O. BOX 134, PUYALLUP, WA 98371 PVGAMC@GMAIL.COM WWW.PUYALLUPVALLEYGEMANDMINERAL CLUB.COM (253) 987-6751

President's Perspective

Tony Johnson

I would like to say a huge thank you to all the volunteers who helped in the various areas at the Club Show held the first weekend in June. It was a huge success! We had a large turnout and the most vendors we have ever had. Setup and takedown went as smooth as it can and all the exceptional volunteers made it a fast process. Thank you all to all the volunteers again!

August is coming up and it is a very busy month for the club. Not to mention the State Fair is right around the corner so start thinking about volunteering for a time slot or two or more. A signup sheet will be being passed around at the next couple of meetings and emails will be sent out.

- August Mike and LaVon's annual Sale 1st weekend
- August Show in the Trees 2nd weekend
- August Overnight Field Trip at Greenwater 3rd weekend
- August Club Picnic 4th weekend (Saturday only)
- September WA State Fair Starts we will need volunteers

Field Trip Report

July 15 - Red Top

Meeting place - 10:00AM at Mineral Springs Recreational mile marker 156 on hwy 97

Hunting for - Agate, Jasper, Fossil Shells and Crystal Plates

<u>Tools you need</u> - Rock hammer, shovel, pry bar, hammer, chisel and a backpack/bucket for your treasures

Access - Moderate climb up a steep road cut.

<u>Additional items</u> - lunch/snacks and water, water, water. Dress in layers. Be prepared for ticks/mosquitoes

August 19 & 20 Overnight - Greenwater

This fieldtrip is with the Washington State Mineral Council - overnight camp out & pot luck Meeting place - 9:00AM at the Enumclaw Ranger Station for those not camping out

<u>Hunting for</u> - Jasper, Agate, Petrified wood, common opal

<u>Tools you need</u> - Rock hammer, shovel, pry bar, hammer, chisel and a backpack/bucket for your treasures

Access - this area is fairly easy to access

Additional items - lunch/snacks and water, water, water. Dress in layers

Please remember that even though we love to meet new people, fieldtrips are a member benefit and part of your membership dues covers you for injury liability.

Though injuries are rare, and we do everything we can to avoid them, we are going out into nature, and uncontrollable environment.

All individuals attending field trips will have to sign a release of liability, and if you are bringing guests, we will try to entice them into join the club by having Membership applications available.

JULY 2023 CLUB HOUSE SCHEDULE

DATE	DAY	TIME	ACTIVITY	LOCATION	INSTRUCTOR				
1	Saturday	10:00AM-2:00PM	Members Open Access	Club House	Tony Johnson				
2	Sunday								
3	Monday	10:00AM-2:00PM	Members Open Access	Tasha Parker					
4	Tuesday		CLOSED INDEPENDENCE DAY						
5	Wednesday	10:00AM-2:00PM	Members Open Access	Club House	Dennis Batchelor				
3	Wednesday	4:00PM-8:00PM	Members Open Access	Club House	Tony Johnson				
6	Thursday	4:00PM-8:00PM	Members Open Access	Club House	Tony Johnson				
7	Friday								
8	Saturday	10:00AM-2:00PM	Gem Trees	Club House	Dana James				
9	Sunday								
10	Monday	10:00AM-2:00PM	Members Open Access	Club House	Tasha Parker				
10	ivioriday	7:00PM-8:00PM	Opal Club Business Meet.	Club House	Tony Johnson				
11	Tuesday	4:00PM-8:00PM	Members Open Access - Beginner	Club House	Ed Knoll				
12	Wednesday	10:00AM-2:00PM	Members Open Access	Club House	Dennis Batchelor				
12	vveullesuay	4:00PM-8:00PM	Wire Wrapping	Club House	Tony Johnson				
13	Thursday	4:00PM-8:00PM	Members Open Access	Club House	Tony Johnson				
14	Friday	6:00PM	Club Board Meeting	Fruitland Grange	Kevin Higgins				
14	Filuay	7:30PM	Club Business Meeting	Fruitland Grange	Tony Johnson				
15	Saturday	10:00AM-2:00PM	Red Top	Field Trip	Nate White				
15	Saturday	10:00AM-2:00PM	Members Open Access	Club House	To be Announced				
16	Sunday								
17	Monday	10:00AM-2:00PM	Members Open Access	Club House	Tasha Parker				
18	Tuesday	4:00PM-8:00PM	Members Open Access - Beginner	Club House	Ed Knoll				
19	Wednesday	10:00AM-2:00PM	Members Open Access	Club House	Dennis Batchelor				
19	Wednesday	4:00PM-8:00PM	Opal Cutting	Club House	Tony Johnson				
20	Thursday	4:00PM-8:00PM	Members Open Access	Club House	Tony Johnson				
21	Friday								
22	Saturday	10:00AM-2:00PM	Fire Opal Carving	Club House	Craig Oda				
23	Sunday								
24	Monday	10:00AM-2:00PM	Members Open Access	Club House	Tasha Parker				
25	Tuesday	4:00PM-8:00PM	Members Open Access - Beginner	Club House	Ed Knoll				
26	Madpaeday	10:00AM-2:00PM	Members Open Access	Club House	Dennis Batchelor				
20	Wednesday	4:00PM-8:00PM	Members Open Access	Club House	Tony Johnson				
27	Thursday	4:00PM-8:00PM	Members Open Access	Club House	Tony Johnson				
28	Friday	6:00PM	Club Program Night	Fruitland Grange	Tony Johnson				
29	Saturday	10:00AM-2:00PM	Opal Cutting	Club House	Tony Johnson				
30	Sunday								
31	Monday	10:00AM-2:00PM	Members Open Access	Club House	Tasha Parker				
For questions about a specific class or event, contact the instructor									
Dennis	Batchelor (36	•	Ed Knoll (253) 651-7453	Tony Johnson (253) 863-9238					
	Parker (206)		,	Glen Ripper (253)	,				
	liggins (253)35		35 - (===)=== 3.01	Nate White (206)					
*** Members Open Access is the time when members can use the saws and cabbing machines									

*** Members Open Access is the time when members can use the saws and cabbing machines

This schedule is subject to change. Please check the club website for updated information.

MEET THE MEMBERS

Name: Jeanine (Nina) Crjins

Favorite Quote: I have many 'favorite' quotes, mostly have to do with historical literature or are parts of poems From classical authors. They have special meanings for different reasons. 2 of my favorites "Nay, we are seven!" We are Seven - William Wordsworth

And of course: "Je Maintiendrai" – the Motto on the Coat of Arms of the Dutch Royal Family

What are your skills/past experience with the rock Club or rock hounding?

We joined the club after we heard about it at the Puyallup Fair. I have been acquiring rocks throughout my life. I found my first fossil at the railroad tracks back in the Netherlands when I was 7 or 8 years old. From then on, I always looked for fossils and pretty rocks.

What is your favorite rock, mineral or gem?

I like fire opals, thunder eggs, Pietersite, picture jasper and anything else that is pretty.

What is your favorite thing to do with rocks, minerals or gems?

Display, wire wrap, wire weave and making gem trees.

What are your three favorite books/podcasts?

- Wuthering Heights by Emily Brontë
- Historical books origin of countries, churches, museum collection books etc. etc.
- Crusade in Jeans Thea Beckman

What is your favorite memory surrounding rockhounding/rocks in general?

My son and I usually work during the weekend but had taken the weekend off to go to a dig site. There was an unexpected change of plans and instead of staying home and do nothing we decided to go to the Prineville area to look for thundereggs. The Polka Dot Mine had a late-night dig scheduled that weekend and we ended up going. We met amazing people; it was so much fun! The next day on our way to a thunder egg dig site we drove through town, and it turned out to be the annual Prineville Rockhound

Pow Wow that weekend. We had no clue. We also stopped at the Richardson Ranch and a few other stores and found some dig sites. 2 nights and 3 days flew by. It was one of the best 'rock hounding' weekends we ever had.

In your opinion, what is the best thing about the Puyallup Valley Gem & Mineral Club?

The kindness of many people, always willing to share their knowledge and help.

In your opinion, where/how does the club need to improve?

What are three (3) things people might not know about you?

- I helped with the launch of Xbox ONE, Windows 10 and Windows 10 Anniversary update when I
 worked for Microsoft, I also helped with the launch and DLC for many games. Fun fact: I don't play
 Xbox or PC games...
- I saw two Space Shuttle launches at Kennedy Space Center as a VIP best experience EVER!
- I speak 5 languages

What is your greatest accomplishment?

Raising my children by myself without family close by and no support system because I had to work 4 jobs to pay my bills.

Clubhouse report

Tony Johnson

A big shout out to the club members listed below! We got in a fresh batch of oil so thought it was time to get all the saws cleaned up and new oil put in. As you can see from the pictures the saws look nice and pretty, but those who cleaned them might look so good... well some of us. It was hard work but with Dennis, Richard, Maria, Nate, Tasha and I, we got it done. Thank you so much you guys!





Associations Director Report - July 2023

I hope all my fellow PVGMC rockhounds are in good health and enjoying life. Here is my report for the month:

Washington State Mineral Council

A meeting was held on Saturday June 10 in Ellensburg.

- 1. It was discovered that an individual was using mechanical drilling equipment at the Walker Valley site. Ed Lehman has been in contact with him and told him that as part of our lease agreement with the state, no power tools of any kind can be used. If it is reported to the DNR we could lose our lease.
- 2. The price of the map books is increasing to \$20 to individuals and \$15 for resale. For purchases of 25 or more the price would be \$14.
- 3. It was decided that since none of the eastside clubs are showing up for the eastside meetings that they would be discontinued until such a time as representatives from those clubs start attending council meetings. The next meeting in September will be held at the Maplewood clubhouse.
 - 4. I volunteered to become a Mineral Council trustee and was accepted as sure.

American Land Access Association

- 1. ALAA will hold it's annual meeting during the American Federation of Mineral Societies/Northwest Federation of Societies Annual Convention and Show in Billings, MT. The show and convention runs August 3-6.
- 2. The Bureau of Land Management is working on developing a map of the areas Bear Canyon Agate is collected to create area to be left open for collecting. A small fee will most likely be charged which will allow you to legally sell what you collect.

Respectfully submitted by

Mark Baumann Associations Director

Goldstone

The man-made glass with a metallic sparkle and the source of the word "aventurescence."

Author: Hobart M. King, PhD, GIA Graduate Gemologist



Goldstone Cabochons: The bright reflective sparkle of goldstone is what makes it a popular man-made gem material. These blue and reddish brown goldstone cabochons are about 20 x 28 millimeters in size.

Goldstone is a man-made colored glass that contains abundant, flat-faced, highly reflective inclusions. The reflective inclusions have a bright metallic luster, and their glittering appearance immediately attracts attention. This exciting appearance has made goldstone a popular man-made gem and sculptural material. It is often cut into cabochons, hearts, beads, spheres,

pendulums, arrowheads, and small sculptures. It is a popular material for making tumbled stones.

Goldstone is produced in a variety of colors. Reddish brown, the original color, is the least expensive and the most commonly encountered variety of goldstone. Dark green, dark blue, and dark purple goldstone are also produced.

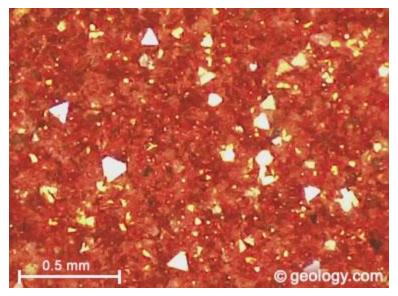
Tumbled Goldstone: Pieces of reddish brown, blue, and green goldstone that have been shaped and polished in a rock tumbler. These pieces are approximately 20 to 25 millimeters along their maximum dimension.

The glittery appearance of goldstone is often attributed to "bits of copper" or "copper filings" that have been

added to the glass. That simplistic description is incorrect.

Reddish brown goldstone is made by heating molten glass to a temperature that is hot enough to dissolve granules of copper oxide that are added to the melt. After the copper oxide is completely dissolved, the melt is allowed to cool very slowly. This slow cooling gives copper ions in the melt adequate time find one another and grow into octahedral-shaped copper crystals. The slower the cooling, the larger the copper crystals.





Copper Crystals in Goldstone: You are looking through a microscope at a polished surface of reddish brown goldstone. A bright light is shining down onto the surface of the goldstone. The triangular faces of octahedral copper crystals are reflecting the light back at you from various depths below the polished surface of the transparent glass. The largest triangular crystal face seen in this view is about 0.1 millimeters from apex to base.

The bright metallic luster of these copper crystals is what produces the sparkling appearance of goldstone. An octahedral crystal has eight triangular faces. If you look at goldstone with a

microscope under reflected light, you will see triangular faces of the copper crystals reflecting the light back at you from various depths below the surface of the glass. See the accompanying image.

The glass of reddish brown goldstone is colorless. Its reddish brown appearance is caused by reflections from the included copper crystals. Blue, green, and purple goldstone are made using compounds of metals other than copper. The color of these goldstones is caused by the color of the glass rather than the color of the reflections from the metallic crystals. The glass color of blue goldstone is caused by cobalt, green is caused by chromium, and purple is caused by <a href="mailto:mai

Reflections from the metallic crystals within the goldstone attract attention and give goldstone its sparkling appeal. The sparkling appearance of the reflections is intensified in three situations: 1) when the goldstone is moved under incident light; 2) when the light source is moved; and, 3) when the eye of the observer is moved.

Aventurine: A cabochon cut from a piece of quartz that contains an enormous number of tiny fuchsite inclusions. Fuchsite is a green chromium-rich mica that gives the quartz its green color. The inclusions share a common orientation, and when the light strikes the cabochon at the proper angle, they simultaneously reflect a flash of light to the observer. The reflectance is known as aventurescence, and the material was named "aventurine."

Before the name "goldstone" was used, the material was widely known as "aventurine glass." That name is the source of three words that are commonly seen in gemology.

- "Aventurescence" is the name of a phenomena that is produced when a material has light-reflecting particles that produce a sparkly or glittery luster.
- "Aventurescent" is an adjective used for materials that exhibit the phenomena of aventurescence. Examples are aventurescent quartz, <u>aventurescent</u> <u>feldspar</u> and aventurescent iolite.



• "<u>Aventurine</u>" is a noun used for a variety of green <u>quartz</u> that contains tiny highly reflective flakes of a green chromium-rich mica known as <u>fuchsite</u>. The reflective flakes of fuchsite produce the aventurescent luster and impart a green color to the material.

The earliest known object made from a goldstone-like material is an amulet excavated in Iran and dated to be from the 12th to early 13th century. [1] The beginning of modern aventurine glass production began in Murano, Italy during the 17th century. [2] It has been produced there, with some interruptions, up to the present time.

A few decades after manufacturing began in Italy, Chinese glassmakers were also producing items made from aventurescent glass. The Imperial Workshop was making aventurine glass bottles that were given as gifts and rewards by the Qing court. [3] Today, much of the goldstone being sold as a gem and lapidary material is coming from factories in China. If you visit Ebay or Alibaba, you will see sellers disclosing that the goldstone offered for sale has been made in China.



Goldstone Rough: This is a large chunk of goldstone rough that measures about 8 inches across. Some parts of this specimen would be suitable for use in lapidary projects. However, other areas are clearly not as desirable. On the left side, you can see some slag and areas without visible sparkle. This specimen is a good example of how the quality of goldstone can vary greatly even within the same batch. Click to enlarge image.

Rough goldstone is usually sold as broken chunks and as slabs suitable for cutting cabochons. The chunks range from small pieces used for rock tumbling to large pieces weighing over 50 pounds.

Although goldstone is a man-made material, it varies greatly in quality, appearance, and suitability for use in making cabochons, tumbled stones and other objects. The buyer needs some knowledge of how goldstone is made to make an intelligent purchase.

Goldstone is made in a large heated vessel that might produce 100 pounds of material or more. After it has been heated and held at the proper temperature, the glass is allowed to cool slowly. Slow cooling allows time for the reflective metallic crystals to grow to a large size.

The batch cools fastest near the outside of the vessel. The smallest crystals in the batch are usually found near the wall of the vessel because that is where the rapid cooling occurs. There, the crystals can be too small to produce the desirable glittering effect that gives goldstone its appeal. The crystals usually grow progressively larger towards the center of the vessel, where cooling is slowest.

Within a batch, the glass can have areas with few visible crystals, areas with numerous gas bubbles, and areas of slag. All of these areas are unsuitable for use, and any buyer who is paying by the pound should make sure that the price paid does not include the weight of useless material.

So, if you are buying rough goldstone, pay attention to crystal size, the presence of areas without crystals, the presence of gas bubbles, and areas of slag. Slag, bubbles, and areas lacking flash will be unusable as "goldstone." Also, some goldstone only exhibits aventurescence from two directions instead of from all directions.

It is best to buy goldstone where you can inspect the rough from all angles in directional light. The next best way is when you can see photos of the piece that you are going to buy from multiple directions with views that are close enough to see the flashing crystals. Buying chunks or lots of goldstone shown in a single photo or sight-unseen from an internet vendor is a risky spend of hard-earned money.

Field Trip Recap

Nate White

The club field trip was to the Wild Turkey Mine for the weekend of June 10th and 11th. Given it was a weekend long trip, the exact number of club members who attended the trip is not 100% certain, but what is certain is that everyone will have found amazing Western Washington Knoble Serpentine. Jim and Jennifer Sahli are always welcoming to beginner and seasoned mine goers, and make sure that everyone has a good time and comes away with a story to tell and beautify material to cut, polish, and treasure.

COMMUNITY SUPPORTERS



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FROM THE BENCH

Best Safety Tip Ever

There is always a danger when you are using a torch that is attached to a tank. You should check your torch for leaks weekly because if it were to develop a leak, best case scenario, you loose your fuel, but worst case scenario you blow up!

It is not recommended that you use a water and soup mixture to test your gaskets for leaks because most soups contain either animal fats or petroleum, both of which are flammable.

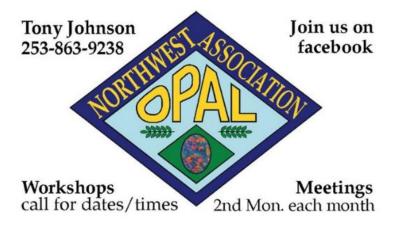
Instead, use a product designed specifically for this purpose called SAFE-D-TECT – leak detector (skew 500-238). You can purchase it at Rio Grande. Even checking it weekly, one bottle will last you several years. It is more than worth it, it could save your life!!!

SUNSHINE REPORT

With everything going on, we have started meeting again, but our attendance at the meetings is still low as members are staying safe. As a group we need to bring to eachother's attention members who need healing thoughts or prayer sent their way.

If you know of anyone else who needs to be recognized in next months Sunshine Report , please email or call

Tony Johnson at <u>ynotopals@outlook.com</u> (253) 863-9238



Local Area Shows for 2023

DATE & TIME	CLUB	SHOW	LOCATION
July 2023 14th 12am—8pm 15th 9am—5pm 16th 10am—4pm	1120 Rock Club	Annual show	Rutland Centennial Hall 215 Shepard Road Kelowna, BC
July 2022 21st 9am—6pm 22nd 9am—6pm 23rd 9am—5pm	Washington Agate and Mineral Society	2023 Rock & Gem Rendezvous	Tenino City Park On Park Avenue (next to the Quarry House and swimming pool) Tenino WA
August 2023 3rd 10am—5pm 4th 10am—5pm 5th 10am—5pm 6th 10am—4pm	Billings Gem and Mineral Club	2023 AM Fed and NW Fed Gem and Mineral show Adults \$5/day or \$15 4 day pass Under 12 free with adult	Billings Hotel & Convention Center 1223 Mullowney Lane Billings MT
August 2023 4th 10pm—5pm 5th 10am—5pm 6th 10am—4pm	Far West Lapidary & Gem Society	57h Annual Gem and Mineral Show \$1 adults, 12 & under free w/Adult	The Mill Casino The Salmon Room 3201 Tremont St, HWY 101 North Bend, OR
August 2023 12th 10am - 5pm 13th 10am - 5pm	Maplewood Rock and Gem Club	Annual Summer Rock and Mineral Sale	Maplewood Clubhouse 8802 196th St SW Edmonds, WA
August 2023 18th 9am - 5pm 19th 9am - 5pm 20th 10am - 4pm	Willamette Agate & Mineral Society	End of Summer Rock and Gem show Free admission	Polk County Fairgrounds 520 S. Pacific Hwy Rickreall, OR
August 2023 19th 9am—5pm	Shelton Rock and Mineral Society	13th Annual Tailgate Rock Sale and Swap Meet Tailgate spots \$40	MCRA 2100 E Johns Prairie Rd Shelton, WA
September 2023 8th 11am – 5pm 9th 9am – 5pm 10th 9am – 4pm	Southern Washington Mineralogical Society	57th Annual show	Cowlitz County Fairgrounds Events Center 1900 7th Ave Longview, WA
September 2023 9th 10am—5pm 10th 10am—5pm	Marcus Whitman Gem and Mineral Society	Annual show	Walla Walla County Fairgrounds Community Center Building 831 Orchard St. Walla Walla WA
September 2023 9th 9am—5pm 10th 10am—4pm	Clallam County Gem And Mineral Association	Annual show	Vern Burton Community Center 308 East 4 th Street Port Angeles WA
September 2023 16th 10am - 5pm 17th 10am - 4pm	Cascade Mineralogical Society	75th Anniversary show	Green River College 12401 SE 320th St Auburn, WA
September 2023 16th 10am - 5pm 17th 10am - 4pm	Fraser Valley Rock & Gem Club	Annual show	Aldergrove Kinsmen Community Centre 26770 29 Ave Aldergrove, BC
October 2023 6th 10am-6pm 7th 10am - 6pm 8th 10am—5pm	Portland Regional Rock and Gem Show	42nd Annual \$7, under 12 free with adult	New Location Wingspan Event Center 801 NE 34th Ave Hillsboro, OR
October 2023 7th 9am - 5pm	Idaho Falls Gem & Mineral Society	Annual Members Rock, Gem, and Jewelry sale Adults \$3, 12 and under free	Bonneville Co. Fairgrounds 1542 East 73rd South Idaho Fall, ID
October 2023 7th 10am - 5pm 8th 10am—5pm	Marysville Rock and Gem club	47th Rocktoberfest	Evergreen State Fairgrounds Display Bldg #500 14405 179th Ave SE Monroe, WA

2023 SHOW & TELL THEMES and PROGRAM NIGHT EVENTS

January - 1st Meeting January 13, 2023 Fortification or any field trip finds	MEETING	DATE	SHOW & TELL THEME	PROGRAM NIGHT EVENT
January - 1st Meeting January 13, 2023 tip finds January - 2nd Meeting January 27, 2023 February - 1st Meeting February - 1st Meeting February - 2nd Meeting February 24, 2023 February 24, 2023 February 27, 2023 February 27, 2023 February 28, 2023 February 29, 2024				
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	December - 2nd Meeting	No Meeting	No Show & Tell	

2023 Elected Officers									
Title	Name	Phone	Email						
President:	Tony Johnson	(253)863-9238	ynotopals@outlook.net						
Vice President:	Kevin Higgins	(253)579-3404	kevlar016@hotmail.com						
Secretary:	Patti Dailey-Shives	(253)678-0029	pattidailey28@gmail.com						
Treasurer:	Jillian Higgins	(253)355-3146	J.Y.Higgins@gmail.com						
Association Director:	Mark Baumann	(253-310-5891	rocksnreptiles4me@gmail.com						
1 Year Director:	Glen Ripper	(253)508-7545	glen311944@yahoo.com						
2 Year Director:	Richard Yang	(208)596-8340	ryang0711@gmail.com						
1 Year Trustee:	Glenn Rodrick	(253)531-4062	gtrodi@comcast.net						
2 Year Trustee:	Dennis Batchelor	(360)870-8741	hobbyhorse51@gmail.com						

2023 Committee Chairs									
Title	Name	Phone	Email						
Clubhouse Coordinator	Tony Johnson	(253)863-9238	ynotopals@outlook.net						
Club Show Coordinator	Jillian Higgins	(253)355-3146	J.Y.Higgins@gmail.com						
Field Trips Coordinator	Nathan White	(206)349-7054	nate.white77@gmail.com						
Web Master	Jillian Higgins	(253)355-3146	J.Y.Higgins@gmail.com						
Editor/Communications	Jillian Higgins	(253)355-3146	J.Y.Higgins@gmail.com						
Membership	Jillian Higgins	(253)355-3146	J.Y.Higgins@gmail.com						
Sunshine	Tony Johnson	(253)863-9238	ynotopals@outlook.net						
Newsletter	Jillian Higgins	(253)355-3146	J.Y.Higgins@gmail.com						
Mineral Council	Mark Baumann	(253-310-5891	rocksnreptiles4me@gmail.com						





The Puyallup Valley Gem & Mineral Club is a member of the American Lands Access Association and the Washington State Mineral Council. You can find more information about the ALAA at: amlands.org or the WA Mineral Council at:

HAPPY BIRTHDAY

July 2023

Ryan Armstrong – 1st Larry Clampitt - 1st Jon Foster – 1st Aaron Guay – 1st Donna Callahan – 2nd Aurora Lawrence - 2nd Michael Day - 3rd Hiromi Saito - 3rd Chloe James – 5th Jessie James – 5th Mary New – 5th Daimy Mitchell – 6th Gary Burgess – 7th Kent Modglin – 7th Stephen Roberts – 8th Lillith Higgins – 9th Justin Aebi – 10th Buck Crane – 11th Debbie Overman – 11th Richard Yang – 11th Michelle Savage – 12th Lois Knoll - 12th Sandy Hoffman – 13th Allen Yanity – 13th Timothy Jackson – 14th Fred Welcher – 15th Denise Boyer – 16th Tina Kotas - 17th Victoria Fulmer – 18th Crystal Vance – 18th Sarah Swanberg – 19th Michele Caple – 22nd Chris Chisholm – 22nd Ann Svensson – 23rd Ralph Davis - 24th Kenneth Ganancial – 29th Jake Boyette – 30th Jeanine Crijns – 30th Sharnel Divona – 30th Trenten Ganancial – 30th Angela Hubbard – 30th Alan Hubbard – 30th Paul Supplee – 30th

FARAWAY GEOLOGY II

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- 1. ABORT
- 11. INSERTION
- 21. SPACESHUTTLE

- 2. ARIANE
- 12. JUNO
- 22. STAGING

- 3. BAIKONUR
- 13. KAPUSTIN YAR

CAPE CANAVERAL 16. PAYLOAD

23. THOR

- 4. BOOSTER
- 14. KOROU
- 24. TRAJECTORY

- 5. BRAKING
- 15. ORBITAL
- 25. VEHICLE26. VOSKHOD

7. DELTA

6.

- 17. PROPELLANT
- 27. WALLOPS

- 8. ENERGIA
- 18. SATURN
- 28. XICHANG

- 9. FALCON
- 19. SCOUT
- 29. ZENIT

- 10. GUIDANCE
- 20 SPACE
- 29. ZENI

ROCK-A-TEER

Newsletter of Puyallup Valley Gem & Mineral Club P.O. Box 134 Puyallup, WA 98371